THE EXTRA MILE

Engine Building and Power Techniques

BY SCOTT SEHR

Sehr PERFORMANCE MACHINE

Absolutely, The Most Motor For Your Money! Guaranteed

Sehr Performance going the "EXTRA MILE"

2-Bolt vs. 4-Bolt Engine Block

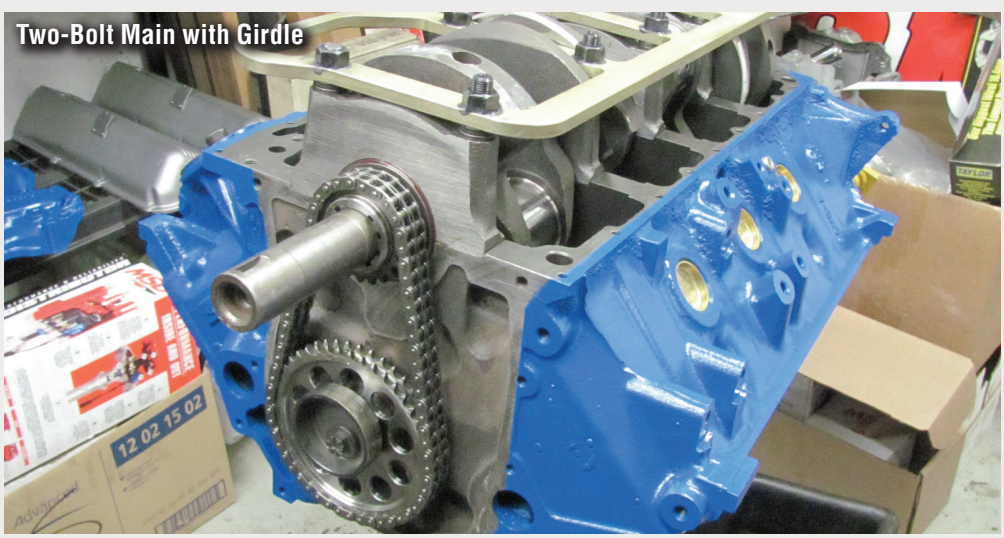
Do I use a 2-bolt block or a 4-bolt block? Good question. When it comes to a performance engine it always has been the rule to go with a 4-bolt engine block for durability. Today, several companies have superior new performance engine blocks available that all have the 4-bolt or splayed cap design, but what do you do if you cannot afford the cost of such engine blocks? Lately it has been harder to find a usable 4-bolt factory block core and the question has come up about how much power and torque a 2-bolt engine block can handle reliably since these are much more available. There is good data available and proof of reliability with our testing, but first let us examine the advantage of a 4-bolt block and what stresses the main caps of the block are going through.

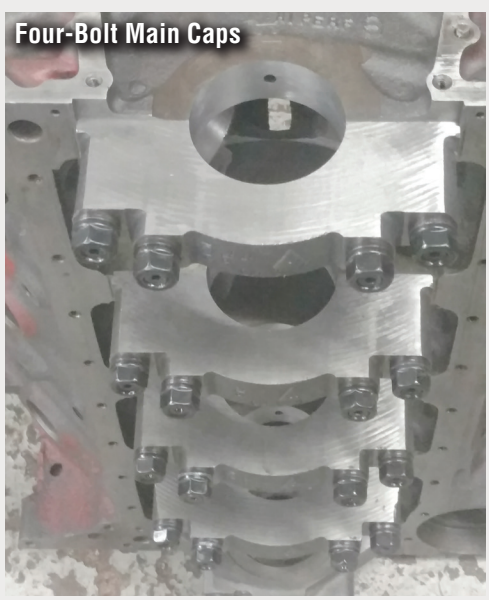
The main cap's job in the engine is to hold the crankshaft bearings and crankshaft in place and to keep the crank stable under load and RPM. Factors that come into play are the weight and stroke of the crankshaft, RPM, weight of the connecting rods and pistons, primary engine load, the engine compression ratio, and the use of the engine. The theory is the wider the main cap base and the more clamping points, the stronger the block to cap rigidity and the better to keep the crankshaft stable. The block side will have material removed for the wider main caps and material drilled out for the outer main bolt of the 4-bolt design, but it is still recognized that the 4-bolt configuration is better for performance applications. When building an engine it is always better to slightly overbuild with the chosen components than to be short on the strength.

So how much power can a 2-bolt design withstand? In my own experience, with a lightened crankshaft and balanced rotating assembly, a small block Chevy 2-bolt can be reliable to 500 HP spinning over 7000 RPM. Our big block Chevy 2-bolt engines have seen over 650HP at 7500 RPM reliably. Our small block Fords will see 500HP at 6500 RPM and big block Fords over 700 HP at 7000 RPM. We have built small block Chryslers holding together at 500 plus HP and big block Chryslers withstanding 650 plus HP. These are just to name a few.

If the engine load is higher or the rotating assembly is a bit heavier, there are things you can do to strengthen up the 2-bolt engine like using main studs, main cap straps, or main girdles, all of which are ways of using the 2-bolt block for your performance engine. The success and power output limits are dependent on accurate and precise machine work and precise engine assembly. Consulting with an experienced machine shop will get you on the right track.

The engine block is the foundation of your engine build. Here at Sehr Performance we have the experience to advise you in the correct direction so your engine will take you the *"Extra Mile"*.


Two-Bolt Main with Girdle


Four-Bolt Main Caps

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